In the Claims:

11. A method for annotating video, comprising the steps of:

receiving video, said video depicts a surface at said live event;

receiving a graphic manually created by a human operator during said live event; and

blending said graphic with said video such that said graphic appears to be drawn on said surface, said step of blending being performed during said live event.

12. A method according to claim 11, wherein:

said graphic includes a curve.

13. A method according to claim 11, wherein:

said step of receiving includes receiving a curve drawn on a touch screen.

14. A method according to claim 11, wherein:

said step of blending includes determining a set of blending values and transmitting said blending values to a keyer.

15. A method according to claim 11, wherein:

prior to said step of blending, at least a portion of said video depicts at least a portion of said surface at a live event and a set of one or more objects occluding said surface; and

said step of blending includes blending said graphic with said portion of said video without drawing said graphic over said objects.

16. A method according to claim 11, wherein:

said step of receiving a graphic includes receiving two dimensional position information for said graphic created in relation to a two dimensional image.

17. A method according to claim 16, further comprising the steps of:

converting a first set of one or more two dimensional positions to one or more three dimensional locations, said first set of one or more two dimensional positions correspond to said two dimensional position information for said graphic; and

converting said one or more three dimensional locations to a second set of one or more two dimensional positions, said step of blending includes blending said graphic with said video based on said second set of one or more two dimensional positions.

18. A method according to claim 17, further comprising the steps of:

receiving camera sensor data for a first camera, said video being captured by said first camera, said step of converting said one or more three dimensional locations to a second set of one or more two dimensional positions is performed uses said camera sensor data for said first camera.

19. A method according to claim 18, wherein:

said step of receiving camera sensor data includes receiving information from an inclinometer.

20. A method according to claim 18, wherein:

said step of receiving camera sensor data includes receiving information from a gyro.

21. A method according to claim 18, further comprising the steps of:

receiving camera sensor data for a second camera, said two dimensional image being captured by said second camera, said step of converting said first set of one or more two dimensional positions to one or more three dimensional locations uses said camera sensor data for said second camera.

22. A method according to claim 17, further comprising the steps of:

receiving camera sensor data for a first camera, said two dimensional image being captured by said first camera, said step of converting said first set of one or more two dimensional positions to one or more three dimensional locations uses said camera sensor data for said first camera.

23. A method according to claim 17, wherein:

said two dimensional position information is different than said first set of one or more two dimensional positions.

24. A method according to claim 17, further comprising the steps of:

dividing said graphic into segments based on said two dimensional position information, said first set of one or more two dimensional positions are end points of said segments; and

thickening said graphic after said step of converting a first set of one or more two dimensional positions to one or more three dimensional locations.

25. A method according to claim 17, wherein:

said two dimensional image is part of a first video frame; and

said step of blending includes blending said graphic with a second video frame different than said first video frame.

26. A method according to claim 17, wherein:

said two dimensional image is part of a first video frame from a first camera; and

said step of blending includes blending said graphic with a second video frame from a second camera.

27. A method according to claim 17, wherein:

said first set of one or more two dimensional positions pertains to only a new portion of said graphic; and

said one or more three dimensional locations pertain to said graphic in its entirety.

28. A method according to claim 17, further comprising the step of:

creating a model of at least a portion of said surface, said step of converting said first set of one or more two dimensional positions to one or more three dimensional locations is performed using said model.

29. A method according to claim 11, further comprising the step of:

smoothing said graphic prior to said step of blending, said graphic is a drawing.

30. A method according to claim 11, wherein:

said step of blending includes performing a flicker filter.

31. A method according to claim 11, wherein:

said video is captured by a first camera;

said graphic includes a curve;

said curve is represented as a set of quadrilaterals; and

said step of blending includes tessellating said quadrilaterals if said first camera has been zoomed past a threshold.

32. A method according to claim 11, wherein said step of blending includes:

adding said graphic to a first video image at a first position in said first video image;

adding said graphic to a second video image at a second position in said second video image;

said first position is different than said second position;

said first position corresponds to a position of an image of a first portion of said surface in said first video image; and

said second position corresponds to a position of said image of said first portion of said surface in said second video image.

33. A method for annotating video, comprising the steps of:

receiving video, at least a portion of said video depicts at least a portion of a surface at a live event and a set of one or more objects occluding said surface;

receiving a graphic manually created by a human operator during said live event; and

blending a graphic with said portion of said video without drawing said graphic over said objects, said steps of receiving video, receiving a graphic and blending are performed during said live event.

34. A method according to claim 33, wherein said step of blending includes the steps of:

accessing color data for said video;

using said color data to access stored blending values, said stored blending values are organized by colors; and

causing a blending of said graphic with said video based on using said blending values.

35. A method according to claim 34, further comprising the steps of:

receiving a selection of a portion of an image, said portion of said image includes a set of colors;

receiving said blending values for said set of colors; and

storing said blending values.

36. A method according to claim 34, wherein:

said step of using includes the steps of:

comparing a first color value for a first pixel in said video to a color map, said color map stores color values and corresponding blending values, and

identifying a first blending value corresponding to said first color value based on said color map; and

said step of causing a blending includes using said first blending value as part of a process to blend said first pixel with a corresponding pixel in said graphic.

37. A method according to claim 33, wherein:

said step of receiving a graphic includes receiving two dimensional position information for said graphic created in relation to a two dimensional image.

38. A method according to claim 37, further comprising the steps of:

converting a first set of one or more two dimensional positions to one or more three dimensional locations, said first set of one or more two dimensional positions are based on said two dimensional position information for said graphic; and

converting said one or more three dimensional locations to a second set of one or more two dimensional positions, said step of blending includes blending said graphic with said video based on said second set of one or more two dimensional positions.

39. A method according to claim 38, wherein:

said two dimensional image is part of a first video frame; and

said step of blending includes blending said graphic with a second video frame different from said first video frame.

40. A method according to claim 33, further comprising the step of:

smoothing said graphic prior to said step of blending, said graphic is a drawing.

41. A method according to claim 33, wherein said step of blending includes:

adding said graphic to a first video image at a first position in said first video image;

adding said graphic to a second video image at a second position in said second video image;

said first position is different than said second position;

said first position corresponds to a position of an image of a first portion of said surface in said first video image; and

said second position corresponds to a position of said image of said first portion of said surface in said second video image.

42. A method for annotating video, comprising the steps of:

receiving video, said video depicts a surface at said live event;

receiving two dimensional position information for at least a portion of a graphic created in relation to a two dimensional image;

converting a first set of one or more two dimensional positions to one or more three dimensional locations, said one or more two dimensional positions correspond to said two dimensional position information;

converting said one or more three dimensional locations to a second set of one or more two dimensional positions; and

blending said graphic with said video based on said second set of one or more two dimensional positions.

43. A method according to claim 42, further comprising the steps of:

receiving camera sensor data for a first camera, said video being captured by said first camera, said step of converting said one or more three dimensional locations to a second set of one or more two dimensional positions is performed uses said camera sensor data for said first camera.

44. A method according to claim 43, further comprising the steps of:

receiving camera sensor data for a second camera, said two dimensional image being captured by said second camera, said step of converting said first set of one or more two dimensional positions to one or more three dimensional locations uses said camera sensor data for said second camera.

45. A method according to claim 42, further comprising the steps of:

receiving camera sensor data for a first camera, said two dimensional image being captured by said first camera, said step of converting said first set of one or more two dimensional positions to one or more three dimensional locations uses said camera data for said first camera.

46. A method according to claim 42, wherein:

said two dimensional position information is different than said first set of one or more two dimensional positions.

47. A method according to claim 42, further comprising the steps of:

dividing said graphic into segments based on said two dimensional position information, said first set of one or more two dimensional positions are end points of said segments; and

thickening said graphic after said step of converting a first set of one or more two dimensional positions to one or more three dimensional locations.

48. A method according to claim 42, wherein:

said two dimensional image is part of a first video frame; and

said step of blending includes blending said graphic with a second video frame different from said first video frame.

49. A method according to claim 42, wherein:

said two dimensional image is part of a first video frame from a first camera; and

said step of blending includes blending said graphic with a second video frame from a second camera.

50. A method according to claim 42, wherein:

said first set of one or more two dimensional positions pertains to only a new portion of said graphic; and

said one or more three dimensional locations pertain to said graphic as a whole.

51. A method according to claim 42, further comprising the step of:

creating a three dimensional model of at least a portion of said surface, said step of converting said first set of one or more two dimensional positions to one or more three dimensional locations uses said model.

52. A method according to claim 42, further comprising the step of:

smoothing said graphic prior to said step of blending, said graphic is a drawing.

53. A method for annotating video, comprising the steps of:

receiving video, said video depicts a surface at said live event;

receiving at least a portion of a drawing manually created by a human operator during said live event;

smoothing said drawing; and

blending said smoothed drawing with said video during said live event.

54. A method according to claim 53, further comprising the step of:

thickening said drawing.

55. A method according to claim 53, wherein said step of smoothing said drawing includes the steps of:

receiving a new point;

adding said new point to a control group if there are is a sufficient distance between said new point and another point in said control group;

drawing a line between said new point and said another point in said control group if there is not more than two points in said control group; and

removing a next to last point in said control group and fitting a Bezier spline through points in said control group, if there are more than two points in said control group.

56. A method for blending images, comprising the steps of:

storing blending values for a set of colors;

receiving a first image after said step of storing;

receiving a second image after said step of storing;

accessing color data for said second image;

comparing said color data to said blending values for said set of colors; and

causing a blending of said first image with said second image based on using said blending values for said set of colors.

57. A method according to claim 56, further comprising the steps of:

receiving a selection of a portion of a third image, said portion of said third image includes a subset of said set of colors; and

receiving one or more blending values for said subset of said set of colors.

58. A method according to claim 57, wherein:

said second image is part of a video of an event; and

said first image is an effect to be added to said video of said event.

59. A method according to claim 58, wherein:

said video is live video; and

said step of receiving one or more blending values includes receiving a number from an operator indicating how to blend said first image with said second image.

60. A method according to claim 56, wherein:

said blending values are alpha percentages.

61. A method according to claim 56, wherein:

said step of comparing includes the steps of:

comparing a first color value for a first pixel in said second image to a color map, said color map stores color values for said set of colors and said blending values for said set of colors, and

identifying a first blending value corresponding to said first color value based on said color map; and

said step of causing a blending includes using said first blending value as part of a process to blend said first pixel with a corresponding pixel in said first image.

62. A method according to claim 56, wherein:

said steps of accessing and comparing include the steps of:

accessing a first pixel in said second image, said first pixel having a first color value,

accessing additional pixels nearby to said first pixel in said second image, said additional pixels having additional color values,

comparing a first color value for said first pixel to a color map, said color map stores color values for said set of colors and said blending values for said set of colors,

comparing said additional color values to said color map,

identifying a first blending value corresponding to said first color value based on said color map,

identifying additional blending corresponding to said additional color values based on said color map,

calculating an average of said first blending value and said additional blending values, and

adjusting said average based on a weighting factor; and

said step of causing a blending includes using said adjusted average to blend said first pixel with a corresponding pixel in said first image.

63. A method according to claim 56, wherein:

said step of causing a blending includes performing a flicker filter.

64. A method according to claim 56, wherein:

said set of colors includes a first subset of colors and a second subset of colors;

said first subset of colors is associated with a first blending value; and

said second subset of colors represents a taper zone having blending values ranging from at or near said first blending value toward a second blending value, said second blending value represents no blending of said first image with said second image.

65. A method according to claim 56, wherein:

set of colors includes multiple visibly distinct colors.

66. A method according to claim 56, wherein:

said step of accessing color data includes accessing color data for a first portion of said second image, said first portion of said image corresponds in position to said first image; and

said step of causing a blending includes causing said first image to be blended with said first portion of said second image and not other portions of said second image.

67. A method according to claim 56, wherein:

said second image is a live video image of a live event; and

said steps of storing, receiving a first image, receiving a second image, accessing, comparing and causing are performed during said live event.

68. A method according claim 67, further including the step of:

updating said blending values for said set of colors during said live event.

69. An apparatus, comprising:

one or more processors;

an input device in communication with said one or more processors;

an output device in communication with said one or more processors; and

at least one storage device in communication with said one or more processors, said processors programmed to preform a method comprising the steps of:

storing blending values for a set of colors,

receiving a first image,

receiving a second image,

accessing color data for said second image,

comparing said color data to said blending values for said set of colors, and

causing a blending of said first image with said second image based on using said blending values for said set of colors.

70. An apparatus according to claim 69, wherein said method further includes the steps of:

receiving a selection of a portion of a third image, said portion of said third image includes a subset of said set of colors; and

receiving one or more blending values for said subset of said set of colors.

71. An apparatus according to claim 69, wherein:

said step of comparing includes the steps of:

comparing a first color value for a first pixel of said second image to a color map, said color map stores color values for said set of colors and said blending values for said set of colors, and

identifying a first blending value corresponding to said first color value based on said color map; and

said step of causing a blending includes using said first blending value as part of a process to blend said first pixel with a corresponding pixel in said first image.

72. An apparatus according to claim 69, wherein:

said steps of accessing and comparing include the steps of:

accessing a first pixel in said second image, said first pixel having a first color value,

accessing additional pixels nearby to said first pixel in said second image, said additional pixels having additional color values,

comparing a first color value for said first pixel to a color map, said color map stores color values for said set of colors and said blending values for said set of colors,

comparing said additional color values to said color map,

identifying a first blending value corresponding to said first color value based on said color map,

identifying additional blending corresponding to said additional color values based on said color map,

calculating an average of said first blending value and said additional blending values, and

adjusting said average based on a weighting factor; and

said step of causing a blending includes using said adjusted average to blend said first pixel with a corresponding pixel in said first image.

73. An apparatus according to claim 69, wherein:

said step of causing a blending includes performing a flicker filter.

74. An apparatus according to claim 69, wherein:

said set of colors includes a first subset of colors and a second subset of colors;

said first subset of colors is associated with a first blending value; and

said second subset of colors represents a taper zone having blending values ranging from at or near said first blending value to a second blending value, said second blending value represents no or minimal blending of said first image with said second image.

75. An apparatus according to claim 69, wherein:

set of colors includes multiple visibly distinct colors.

76. An apparatus according to claim 69, wherein:

said step of accessing color data includes accessing color data for a first portion of said second image, said first portion of said image corresponds in position to said first image; and

said step of causing a blending includes causing said first image to be blended with said first portion of said second image and not other portions of said second image.

77. An apparatus according to claim 69, wherein:

said second image is a live video image of a live event; and

said steps of storing, receiving a first image, receiving a second image, accessing, comparing and causing are performed during said live event.

78. An apparatus according claim 77, wherein said method further includes the step of:

updating said blending values for said set of colors during said live event.

79. An apparatus, comprising:

one or more processors;

a drawing device in communication with said one or more processors;

an output device in communication with said one or more processors; and

at least one storage device in communication with said one or more processors, said processors programmed to preform a method comprising the steps of:

receiving video, said video depicts a surface at said live event,

receiving a graphic manually created by a human operator during said live event, and

causing a blending of said graphic with said video such that said graphic appears to be drawn on said surface, said step of blending being performed during said live event.

80. An apparatus according to claim 79, wherein:

prior to said step of causing a blending, at least a portion of said video depicts at least a portion of said surface at a live event and a set of one or more objects occluding said surface; and

said step of causing a blending includes causing a blending of said graphic with said portion of said video without drawing said graphic over said objects.

81. An apparatus according to claim 79, wherein:

said step of receiving a graphic includes receiving two dimensional position information for said graphic created in relation to a two dimensional image; and

said method further includes the steps of:

converting a first set of one or more two dimensional positions to one or more three dimensional locations, said first set of one or more two dimensional positions correspond to said two dimensional position information for said graphic, and

converting said one or more three dimensional locations to a second set of one or more two dimensional positions, said step of causing a blending includes blending said graphic with said video based on said second set of one or more two dimensional positions.

82. An apparatus according to claim 81, wherein:

said two dimensional image is part of a first video frame from a first camera; and

said step of causing a blending includes blending said graphic with a second video frame from a second camera.

83. An apparatus according to claim 79, further comprising the step of:

smoothing said graphic prior to said step of blending, said graphic is a drawing.

84. An apparatus according to claim 79, wherein said step of causing a blending includes:

adding said graphic to a first video image at a first position in said first video image;

adding said graphic to a second video image at a second position in said second video image;

said first position is different than said second position;

said first position corresponds to a position of an image of a first portion of said surface in said first video image; and

said second position corresponds to a position of said image of said first portion of said surface in said second video image.

85. An apparatus, comprising:

one or more processors;

a drawing device in communication with said one or more processors;

an output device in communication with said one or more processors; and

at least one storage device in communication with said one or more processors, said processors programmed to preform a method comprising the steps of:

receiving video, at least a portion of said video depicts at least a portion of a surface at a live event and a set of one or more objects occluding said surface,

receiving a graphic manually created by a human operator during said live event, and

causing a blending of a graphic with said portion of said video without drawing said graphic over said objects, said steps of receiving video, receiving a graphic and causing are performed during said live event.

86. An apparatus according to claim 85, wherein said step of causing a blending includes the steps of:

accessing color data for said video;

using said color data to access stored blending values, said stored blending values are organized by colors; and

causing a blending of said graphic with said video based on using said blending values.

87. An apparatus according to claim 86, wherein said method further includes the steps of:

receiving a selection of a portion of an image, said portion of said image includes a set of colors;

receiving said blending values for said set of colors; and

storing said blending values.

88. An apparatus according to claim 87, wherein:

said steps of accessing and using include the steps of:

accessing a first pixel in said video,

comparing a first color value for said first pixel to a color map, said color map stores color values and corresponding blending values, and

identifying a first blending value corresponding to said first color value based on said color map; and

said step of causing a blending includes using said first blending value as part of a process to blend said first pixel with a corresponding pixel in said graphic.

89. An apparatus according to claim 85, wherein:

said step of receiving a graphic includes receiving two dimensional position information for said graphic created in relation to a two dimensional image; and

said method further includes the steps of:

converting a first set of one or more two dimensional positions to one or more three dimensional locations, said first set of one or more two dimensional positions correspond to said two dimensional position information for said graphic, and

converting said one or more three dimensional locations to a second set of one or more two dimensional positions, said step of blending includes blending said graphic with said video based on said second set of one or more two dimensional positions.

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90. An apparatus according to claim 85, wherein said method further includes the steps of:

smoothing said graphic prior to said step of blending, said graphic is a drawing.

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91. An apparatus according to claim 85, wherein said step of causing a blending includes:

adding said graphic to a first video image at a first position in said first video image;

adding said graphic to a second video image at a second position in said second video image;

said first position is different than said second position;

said first position corresponds to a position of an image of a first portion of said surface in said first video image; and

said second position corresponds to a position of said image of said first portion of said surface in said second video image.

92. An apparatus, comprising:

one or more processors;

a drawing device in communication with said one or more processors;

an output device in communication with said one or more processors; and

at least one storage device in communication with said one or more processors, said processors programmed to preform a method comprising the steps of:

receiving video, said video depicts a surface at said live event,

receiving a two dimensional position information for at least a portion of a graphic created in relation to a two dimensional image,

converting a first set of one or more two dimensional positions to one or more three dimensional locations, said first set of one or more two dimensional positions correspond to said two dimensional position information,

converting said one or more three dimensional locations to a second set of one or more two dimensional positions, and

causing a blending of said graphic with said video based on said second set of one or more two dimensional positions.

93. An apparatus according to claim 92, further comprising:

a first set of one or more camera view sensors, said method further includes the step of receiving camera sensor data for a first camera from said first set of one or more camera view sensors, said video being captured by said first camera, said step of converting said one or more three dimensional locations to a second set of one or more two dimensional positions is performed based on said camera sensor data for said first camera.

94. An apparatus according to claim 93, further comprising:

a second set of one or more camera view sensors, said method further including the step of receiving camera sensor data for a second camera from said second set of one or more camera view sensors, said two dimensional image being captured by said second camera, said step of converting said first set of one or more two dimensional positions to one or more three dimensional locations is performed based on said camera sensor data for said second camera.

95. An apparatus according to claim 92, further comprising:

a first set of one or more camera view sensors, said method further including the step of receiving camera sensor data for a first camera from said first set of one or more camera view sensors, said two dimensional image being captured by said first camera, said step of converting said first set of one or more two dimensional positions to one or more three dimensional locations is performed based on said camera sensor data for said first camera.

96. An apparatus according to claim 92, wherein:

said first set of one or more two dimensional positions pertains to only a new portion of said graphic; and

said one or more three dimensional locations pertain to said graphic in its entirety.

97. An apparatus according to claim 92, wherein said method further includes the step of:

smoothing said graphic prior to said step of blending, said graphic is a drawing.

98. An apparatus, comprising:

one or more processors;

a drawing device in communication with said one or more processors;

an output device in communication with said one or more processors; and

at least one storage device in communication with said one or more processors, said processors programmed to preform a method comprising the steps of:

receiving video, said video depicts a surface at said live event,

receiving at least a portion of a drawing manually created by a human operator during said live event,

smoothing said drawing, and

blending said smoothed drawing with said video during said live event.

99. An apparatus according to claim 98, wherein said method further includes the step of:

thickening said drawing.

Remarks

The amendments fix a typographical error from the word processor's spell check tool.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this document, including any fee for extension of time which may be required.

Respectfully submitted,

FLIESLER, DUBB, MEYER & LOVEJOY LLP

Date: February 20, 2001 By: _____

Burt Magen
Reg. No. 37,175

FLIESLER, DUBB, MEYER & LOVEJOY LLP
Four Embarcadero Center, Suite 400
San Francisco, California 94111-4156
Telephone (415) 362-3800